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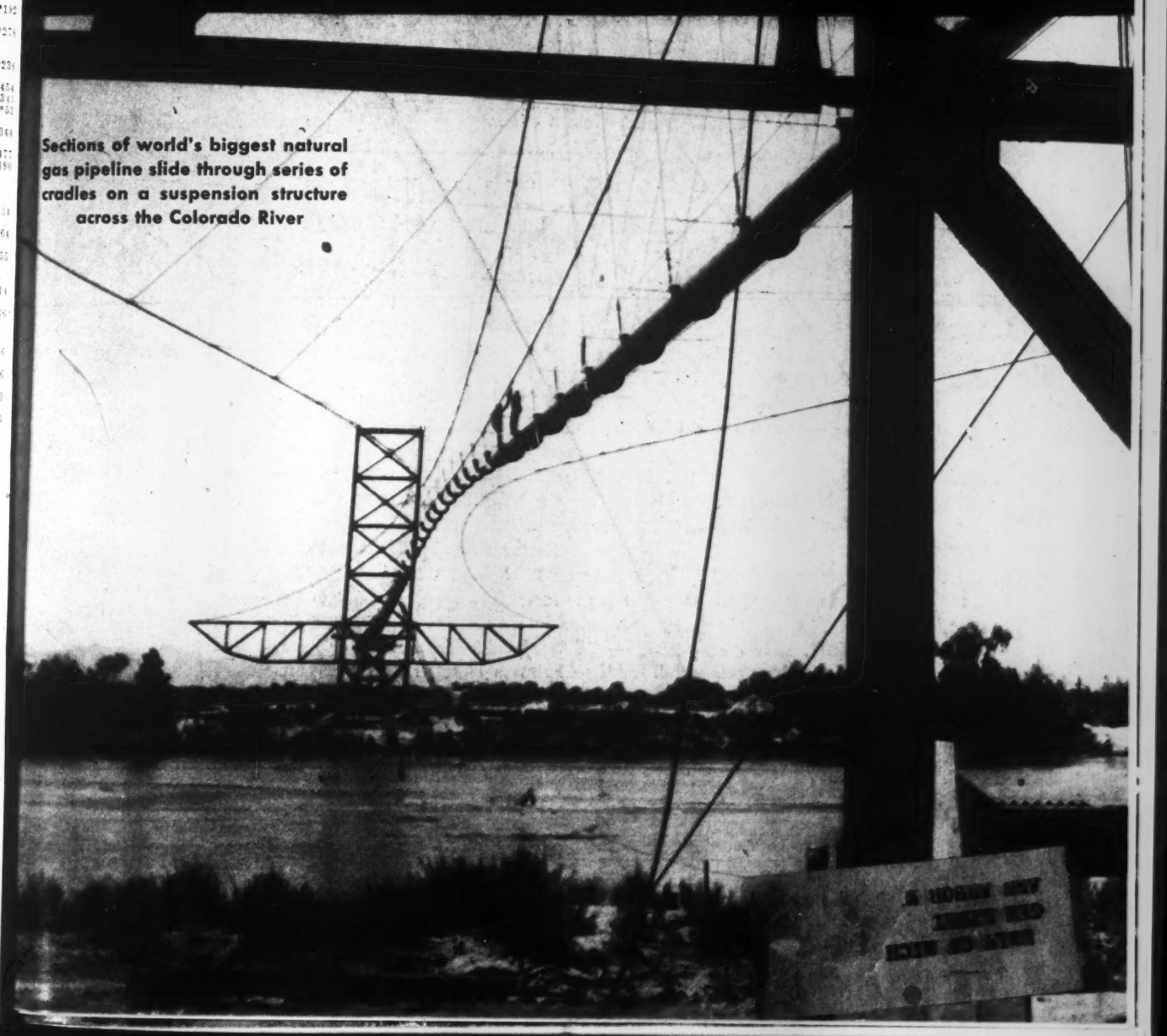

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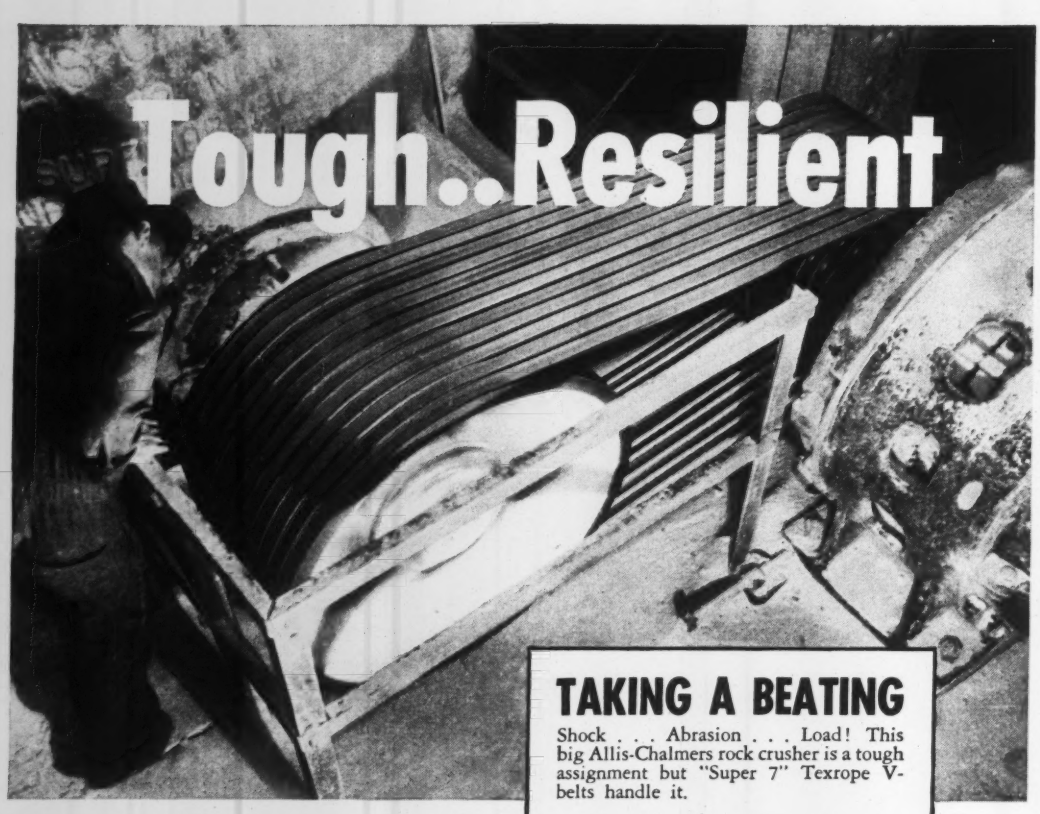

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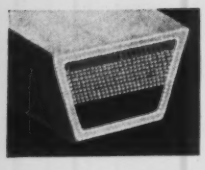

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News of the Week

ENGINEERING NEWS-RECORD • JULY 3, 1947 • VOLUME 139 • NUMBER 1

Constructors seek stability in union-employer compacts

New York City heavy construction men agree to freeze wages and working conditions for 2½-year period as figures show drop in physical building volume

As a result of recent disclosures (see page 3 this issue) that construction volume is falling behind 1946, contractors and labor unions began moves last week to stabilize their industry and attract more capital into active construction work.

Most important development during the week was the announcement in New York City of the signing of a two and one-half year contract between labor unions and contractors in heavy construction that freezes wages and working conditions.

Significantly, the agreement provided that no increase in wages will be made, notwithstanding any action that may be taken "by any other labor group."

In a joint announcement, the General Contractors' Association and the Heavy Construction Council, hailed their agreement as an inducement to capital, because it will make for stability of bids and estimates on new construction.

The Heavy Construction Council includes locals of the Dock Builders, Pile Drivers and Shorers Union; the International Union of Operating Engineers; the International Brotherhood of Blacksmiths, Drop Forgers and Helpers; Blasters and Drill Runners Union; Carpenters District Council; Timberman's Union; Teamsters; Laborers, and Pavers. The contractors' group represents some 100 firms engaged in heavy construction.

Under terms of the agreement, wages and working conditions are frozen at existing levels, and all parties agree to work an 8-hour day.

Open drive for business

Concerned with the lag in construction business, three other New York City construction groups also announced plans for clarifying the status of the industry.

In a joint meeting, the New York Building Congress, the Building and Construction Trades Council (AFL) and the Building Trades Employers Association, announced plans for tightening construction practices to make for more stable bidding and prices as a means of attracting more jobs "from the drawing board to the actual construction stage."

Encouraged by a pledge of cooperation from labor, the employers pledged themselves to eliminate inefficiencies in management; labor "pirating", and other detrimental activities.

In a somewhat similar action, the General Contractors' Division of the Building Contractors' Association of Indianapolis signed contracts with labor unions calling for 8-hour days and 40-hour weeks in an attempt to eliminate the labor "pirating" that at times resulted in $4-an-hour jobs for carpenters.

Drop court action

In Philadelphia, Pa., the General Building Contractors Association announced it had dropped an unusual court action against five unions, after settlement of a strike that stopped work

(*Continued on page 2*)

Assess labor law's effect on building

The recent passage of the Taft-Hartley Labor Control Act will pose a number of problems for the construction industry—including the question of how a shop election can be held in the building field.

A preliminary survey by the *Engineering News-Record* Washington staff last week indicated these significant points for construction men:

1. Existing closed-shop agreements may remain in effect until they expire. An NLRB ruling and perhaps court action will be required to decide what happens to such agreements that now have no termination date and continue from year to year subject only to amendment at specific times—and which, apparently, could continue indefinitely.

2. Employers could continue informal arrangements to hire workers through union hiring halls, although such arrangements would not be enforceable in a contract. The law bars any preferential hiring contract and bars discrimination as between union and non-union men. A contract may be signed requiring a worker to join a union after 30 days, but only after a union shop election had been held; and the union is barred from denying admittance to a worker unless he has been offered membership on the same terms as other applicants or members.

3. Automatic checkoff provisions now in effect or signed before Aug. 22 can continue until July 1, 1948. Any contracts renewed after Aug. 22, or any contract in effect on July 1, 1948, must be amended to conform to checkoff limitations—that is, an employer cannot deduct from wages any membership dues, unless he has received a "written assignment" from the employee.

Washington observers, pointing to the difficulty of holding "shop" elections in an industry where few employers have "plants" and most hiring is done by the job, believe there will be no closed-shop or even union-shop contracts. They said union men could simply refuse to work on the same job with non-union workers, and added that in areas where the building-trades unions are strong contractors probably will continue to hire through the unions.

The only predictable trouble in such a set-up might occur if a non-union man complains to NLRB that he is being discriminated against. In this case, the worker could bring the contractor before NLRB on charges of unfair labor practice, although he would have to prove that the discrimination was on the basis of his non-membership in a union.

NEWS IN BRIEF

In telegraphic form, here are latest news developments on the engineering and construction front during the week.

Construction—New England Telephone & Telegraph Co. has been authorized to build an 18-story long-distance telephone building in *Boston, Mass.*, to cost about $2,746,400. . . . The statewide general hospital construction program of *Mississippi*, expected to cost $50,000,000, has been endorsed at a public hearing in Jackson. . . . A new $1,000,000 factory of the Electric Auto Lite Co. has been completed at *Vincennes, Ind.* . . . Benson Mfg. Co., is planning to spend at least $2,000,000 on new buildings at *Kansas City, Mo.*, for the manufacture of aluminum barrels and containers. . . . Our Lady of Lourdes Hospital, *Camden, N. J.*, has authorization to build an 8-story general hospital to cost about $2,500,000. . . . Ground has been broken for the new $3,500,000 Hermann Hospital at *Houston Texas.* . . .The City Planning Commission of *Los Angeles, Calif.*, has recommended that additional land be acquired for the proposed $10,500,000 police building and the $6,500,000 health department building and receiving hospital. . . . A $15,000,000 refinery expansion of the Ohio Oil Co. at *Robinson, Ill.*, has been announced.

Highways—City plan commission of *Fort Wayne, Ind.*, has recommended major road improvements, off street parking facilities and grade crossing removal. . . . Clearing and grading for an expressway skirting the western edge of Druid Hill Park, *Baltimore, Md.*, has started. . . . *Virginia* department of highways plans to put under way $4,000,000 in contract work every month for the rest of 1947. . . . Test borings are being made for the Delaware state highway department's bridge across Cherry Island Range between *Pigeon Point, Del.*, and *Deepwater Point, N. J.* . . . The proposed Sullivan Gulch Highway through *Portland, Ore.*, to connect with the Columbia River Highway east of the city will cost $10,500,000, the Oregon State Highway Commission has revealed. . . . U. S. and Hawaii will soon begin a $1,600,000 road construction job in *Oahu* to serve Wheeler Army Air Field and Schofield Barracks.

Housing—Colony Realty Co. is planning a 40-unit $350,000 apartment project in *Indianapolis, Ind.* . . . Indiana Limestone Co. has begun a $1,500,000 housing project for its employees at *Bedford, Ind.* . . . Edwards Green, architects and engineers, Camden, N. J., announced plans for an apartment development in *Haddon Township, N. J.*, to cost $1,000,000. . . . In *Philadelphia, Pa.*, the following developments are announced: Van Kirk Homes, Inc., $1,000,000 in Lawndale section; Edward G. Holloway, Inc., $1,000,000 in northeast section of the city; Wallace and Warner, $1,000,000 in suburbs; Sylvester Construction Co., $1,200,000, in northeast section. . . .*Margate, N. J.*, to cost $1,000,000. . . .Upland Development Co., $2,750,000 at *Upland, Pa.* . . . Sunnybrook, Inc., additional residential construction at *Springfield Township* to cost over $1,000,000.

Water supply and sewers—Indianapolis Water Co. is starting work at *Indianapolis, Ind.*, to double the capacity of the Fall Creek purification plant. . . . Plans are nearly ready for the $1,437,000 sewage collection and disposal plant project at *Tulsa, Okla.* . . . . *Shelby, Ohio*, voters will consider a $300,000 bond issue next November to finance improvement of the city's storm and sanitary sewer system. . . . *Columbus, Ohio*, city council has authorized the water department to seek an additional raw water supply. Three 80-ft. wells at the confluence of the Scioto and Olentangy rivers will be drilled to tap underground water.

Canada broadens labor law provisions

The Canadian House of Commons last week began consideration of new federal labor legislation which vests unions with sole authority for making collective bargaining agreements, but enforces a greater measure of responsibility on the unions for keeping peace on the labor front.

Designed to replace wartime controls still in effect, the new measure would cover between 200,000 and 250,000 of an estimated labor force of 4,000,000. The remainder of this force is covered by provincial laws.

Under provisions of the new law, trade unions as a whole would be certified as bargaining agents, rather than individuals in the unions, but with attendant penalties of fines against the unions if agreements are violated. Additionally, all collective bargaining agreements are to contain provisions for peaceful settlement of disputes, and strikes during the life of an agreement are outlawed.

The Canada Labor Relations Board is granted wide powers of discretion in the field of certification, if it believes a union no longer represents a majority of employees; and may also certify a rival union after any collective bargaining agreement has been in force for 10 months. Contracts must run for a minimum of one year and may include union security provisions, but nothing in the provisions is said to give these security provisions, or check-off practice the force of law.

The law states specifically that no provision in any agreement can force an employer to discharge an employee because he belongs to a union other than that which has been designated as official bargaining agent for the particular group.

Seek stability

(*Continued from page* 1)

on some 400 projects and kept about 20,000 workers idle. Terms of the settlement—which involved wage increases—were not disclosed.

The contractor group had asked court aid for restraining orders to halt the work stoppages, asked for the appointment of an impartial arbitration committee, and asked the court to compel the defendant unions to "live up to" a master agreement. The association claimed that the unions had obliged themselves not to strike while disputes were in the process of settlement. According to the court petition, work stoppages had occurred since April 1, subsequent to which date there was formal approval of a strike by the Building Trades Council, as required by the terms of the master agreement.

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Physical construction volume lower as dollar-volume holds slight increase

Possibility of "record" construction year fades as figures show lessening purchasing power of dollar

Although total dollar volume of construction contracts for the first 26 weeks of 1947 shows a slight increase over the same period last year, actual physical volume has dropped about 11 percent in the same period, a preliminary check by *Engineering News-Record's* Business News Department showed last week.

The *ENR* figures, compiled as of the end of June, 1947, showed a total expenditure of $2,673,865,000 reported to the magazine this year, as compared with $2,632,186,000 in the same period of 1946. Physical volume, however, was running about 11 percent behind 1946, according to the *ENR* index.

If the construction industry is to reach the predicted total expenditure of $6,500,000,000 for new heavy construction by the end of this year, it will be necessary to record an average of at least $146,000,000 worth of contracts let each week for the remaining half of the year, statisticians said. The current trend—which saw a high average week to date through June set at $103,000,000, as compared with $101,000,000 average through June, 1946—gives no great promise of reaching the required figure.

The highest week's business reported to date was that of June 12, when $158,000,000 was recorded. This, too, was below last year's all-time high week—that of June 6—when $182,000,000 was shown on the books.

The fact that 1947 is dropping behind 1946, while disappointing, does not mean that this year will be a bad one for the industry, statisticians added. The 1947 construction year was the third best in construction history, including the war years. The slowdown does provide, however, a continuing indicator of the falling value of the construction dollar as indexed against concrete results obtained.

Prices show stability

A brighter side of the construction picture is the apparent stabilizing of construction materials prices over the last two months.

Since the end of April, prices on cement, steel, pipe and other construction materials have remained virtually unchanged, and the price of lumber has even recorded a three percent drop in the country as a whole.

Wages paid to labor, however, are up four and one-half percent for common labor and up four percent for skilled labor in the two-month period, and new rates are still being negotiated in many areas. Asphalt and oil binders, too, show a slight increase, attributable to reported shortages of oil in the midwest.

Fay-Bove conviction upheld by Supreme Court

The U. S. Supreme Court recently upheld a "blue-ribbon" jury conviction of Joseph S. Fay and James Bove, on charges of extorting money from construction contractors on New York City's $300,000,000 Delaware water project. *ENR*, March 15, '45 vol. p. 358; March 22, '45 vol. p. 370; and Aug. 1, '46 vol. p. 145.)

Fay and Bove were convicted March 15, 1945, and were sentenced April 5, 1945, to eight and a half to sixteen years each in prison. The special State Supreme Court jury had found the pair guilty of extorting $62,000 and conspiracy to extort $280,000 from contractors.

Fay, who was international vice-president of the International Hod Carriers, Building and Laborers' Union of America, and Bove, who was secretary-treasurer of Local 60, when convicted, protested that their trial before a jury composed of persons from "the upper stratum of economic and social life" violated rights guaranteed by the United States Constitution.

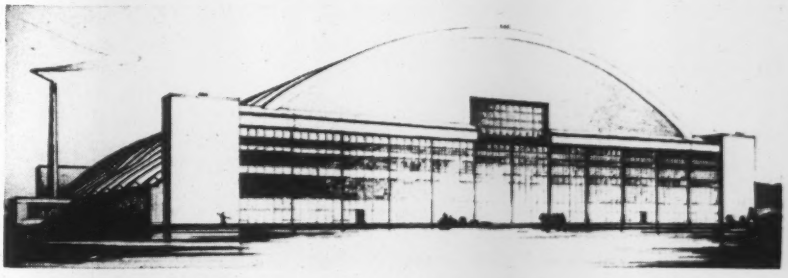
Justice Jackson said: "the Supreme Court majority saw nothing on the face of the New York law permitting 'blue-ribbon' juries to offend the federal constitution."

Contractors offered alternate type bids

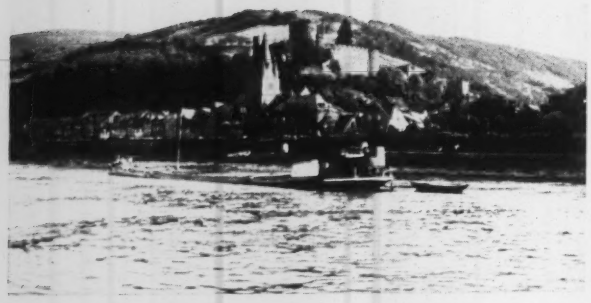
At the request of contractors and supply firms interested in the construction of Veterans Administration hospitals, the Office of the Chief of Engineers has instructed district and division engineers to offer these hospitals for construction under alternate types of bids, the War Department announced today. The first form is for the prime, or overall bid, embracing the entire construction job. The second breaks the job down into seven contracts.

Under the alternate system, the district engineer will ask for bids on the main building less the mechanical and electrical work and elevators; the mechanical work within the main building; electrical work within the main building elevators; separate buildings or groups of related buildings at neuropsychiatric hospitals and similar installations not consisting chiefly of one building; auxiliary buildings such as quarters and service facilities; site improvement and outside utilities.

The alternate plan is expected to result in more bids, since it offers a more diversified field to the contractor, permits specialists to bid on certain jobs in which they are experts and involves, through smaller contracts, less risk to the individual contractor.



***Biggest Hangar**—Said to be the largest hangar of its type ever designed, this 340 x 300-ft. reinforced concrete and masonry hangar will be built at Rapid City, S. D., to house completely the Army's largest bombers. Floor space provided will total 102,000 sq. ft., capable of sustaining wheel loads up to 150,000 lb.. Door opening will be 300 ft. long by 40 ft. high, with an additional 50 x 20 ft. opening in the center to permit passage of tail assemblies. Each of nine roof units will be a cylindrical shell, about 3 3/4 in. thick. Low bidder at a recent opening of bids was the Steemberg Construction Co., St. Paul, Minn., at $1,402,970—about $33,000 above engineers' estimates.*



Castles on the Rhine—*Picturesque villages, some of them almost completely untouched by battle, crowd the banks of the Rhine Gorge at frequent intervals. Many of these villages are served by the Rhine's barges.*

Heavy Traffic—*Typical Rhine River traffic consists of powerful self-propelled barges like those in the foreground, and tugs that pull as many as six 1,200-ton barges to bring raw materials to the manufacturers.*

EUROPEAN NOTEBOOK . . . .

Down the Rhine to the Ruhr

By WALDO G. BOWMAN

Frankfort-Am-Main—Germany is suffering from heart trouble. The heart is the Ruhr industrial district centering on Duisburg, and it is sick indeed. And even if this heart were in moderately good condition, the principal artery through which it pumps its output—and the vein through which much of its sustenance returns would not be adequate.

This artery of dual character is the Rhine River, and it needs medical and surgical attention quite as much as the Ruhr. Together these two physical elements of Germany will be the source of the postwar recovery of all of western Europe.

All this, of course, is well known to our responsible officials in Germany, as well as to those of Great Britain and France, and major attention is being devoted to the situation.

It was to see what had been done and to seek an appreciation of what must be done next that I spent the past week on the Rhine and in the Ruhr.

We traversed 350 miles of the Rhine by boat from near the Swiss border almost to Holland. We toured the Ruhr by car and train, visiting such cities as Dusseldorf, Duisburg, Oberhausen, and Essen. And finally we went on north to Minden, headquarters of the bizonal (U. S. and British) body that is attempting to get an export-import program for Germany rolling.

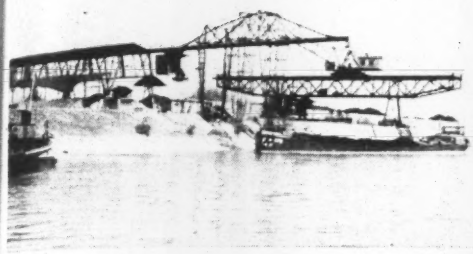
My host on the river trip was Col. Heath Twitchell who, by his deeds, has become the chief bridge expert of the European Command. We started at **Breisach,** 25 miles from the Swiss border, and at intervals as we went downstream others came aboard, including Capt. Yves Canal of the French Army whose unit had built some of the bridges; Col. T. D. Rogers, chief engineer of the U. S. Constabulary; R. Malcor, chief bridge engineer for the French Zone; S. Middleton, chief of highway transport for the British Zone; and Comdr. F. W. Leahy, U. S. Coast Guard, and Chief of the Rhine Field Organization in the U. S. Zone in charge of clearance, navigation, inspection and security. Commander Leahy's predecessor in the job was Col. George S. Clemens, well-known U. S. river engineer and now chief of construction for the chief engineer of "Eucom." There was even a German engineer aboard from one of the contracting firms that has built many of the Rhine bridges.

The whole trip was planned and organized by Brig. Gen. Donald Shingler, chief engineer of the European Command and his chief of staff, Col. Conrad Hardy. Not only the itinerant editor but all others in the party were thrilled and instructed by this first complete and integrated view of the Rhine in the three zones of occupation.

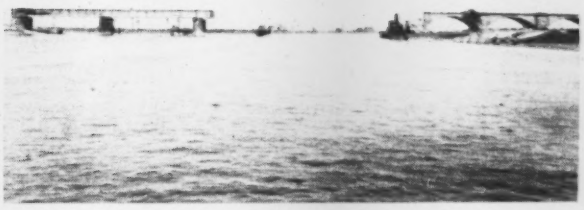
The 400 miles of the Rhine that is in Germany (including the first 115 miles that form the boundary with France) may be divided into four sections with differing aspects. The first or upper section, from Basel, Switzerland, to Strasbourg, France (75 miles), has a steep gradient and is confined between rock-lined banks. The high velocity of the current requires the use of powerful tugs and self-propelled barges to make the upstream passage. At Strasbourg the Rhine-Marne Canal branches off to the west, so that traffic bound for France can be handled by smaller craft. Even so, the majority of Rhine barges are of 1,200 to 1,500 tons capacity, and since six of such barges constitute the usual tow (they are pulled rather than pushed as on our rivers), the tugs are large 2,000 hp. being not unusual.

The second section of the Rhine, from Strasbourg to Bingen (40 miles), is of lesser gradient, and is partly confined and partly controlled by groins, which are short compared to those in the U. S. and inclined slightly upstream instead of down. Many large industrial plants and coal unloading facilities line the banks, particularly in the vicinity of such cities as Karlsruhe, Mannheim and Mainz. Not many of them are working and most are wrecked.

The third section, from Bingen to Bonn (80 miles), encompasses the scenic and much-written-about gorge. In the first half, down as far as Coblenz, the river runs in a true gorge with the mountains rising steeply. The war avoided this area completely. Below Coblenz, the mountains are some distance back from the river—except at



***Lifeblood**—Ruhr coal—lifeblood of German industry—is being unloaded from barges near Mannheim. Germany needs more machinery of this type to speed its recovery to a self-sustaining basis.*



***Bridge Not Ready**—Frankenthal Bridge, whose two girder spans of 543 ft. each were the world's longest, was never completed by the Germans. The second span collapsed during wartime construction.*

Remagen, the location of the famous bridge which our Ninth Armoured Division captured and our III Corps and Advanced Section engineers tried so valiantly to repair (*ENR* March 29, 1945). The wreckage of the bridge is being cleared, work on the main span having been completed. Remagen will not be rebuilt since it is one of those several bridges crossing the Rhine which were erected solely for military purposes. The Ardennes offensives in both World Wars were supplied across Remagen. Without it, Von Runstedt could not have mounted his Battle of the Bulge. Neither France nor the U. S. would countenance another Remagen bridge.

The last section, from Bonn to the Holland borders (105 miles), is characterized by a gently sloping gradient and traverses flat plains country. Encompassing such great industrial cities as Cologne, Dusseldorf and Duisburg, this section cuts directly through the industrialized Ruhr, an area which takes its name from a relatively small stream that joins the Rhine at Duisburg.

Every important city on the Rhine has its protected harbor (sometimes built in old cutoffs that were left when the river was straightened), but none equals Duisburg, which has used the Ruhr River for this purpose and in addition has dug many branch channels and canals which are lined with wharves and loading facilities. It is here that the coal and steel of the Ruhr and many of its industrial products start their journey up the Rhine, and sometimes down it to Rotterdam and the outside world.

A later, more detailed article will consider the Rhine as a great engineered waterway and a traffic artery. It is sufficient to point out here its present physical condition.

There is more traffic now on the Rhine than there appears to be on any American River. And when it is noted that the present annual volume at the current rate is only 13 million tons as compared to a prewar peak of 100,000,000 tons, the importance of the Rhine to Europe's economy becomes clear.

In its present condition the Rhine could not handle much more traffic than it does now. In the U. S. zone for example, Commander Leahy pointed out that although we have raised 690 sunken barges and tow boats there are 120 more that must be removed. Few of the remaining sunken craft restrict river operation, but the barges themselves are needed to haul coal. Existing barges are barely adequate, and delays in unloading and turn around, which frequently occur, make the battle a nip and tuck affair.

Harbor facilities are not a present problem. Mannheim is operating at 100 percent and Karlsruhe at 75 percent. Up the Main River, where much traffic goes and originates, Frankfort is at 100 percent, Aschaffenburg 65, and Wurzburg 80 percent. Shipyards for repairs are the big problem since most of them were destroyed. Many are being built, and eventually there will be an oversupply for ordinary needs.

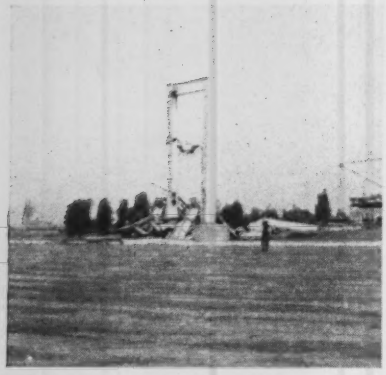
The principal river problem comes from the bridges—either the wreckage of the original structures or the channel spans of the rebuilt temporary crossing cause restrictions that make one-way traffic necessary. The biggest wreckage hazard remaining is at Rudesheim, just upstream from Bingen, where only a 130-ft. channel is available, although current clearance operations will soon increase this to 200 ft. Military bridges still exist at Mainz (U. S. Zone) and at Cologne and Dusseldorf (British Zone), and these provide 200 ft. openings. Greater vertical clearance is the most pressing need, since 18 instead of the prewar 30 ft. is the rule.

A later article will review the bridge situation in detail. Here it may be pointed out only that the policy in all three zones is to leave bridge rebuilding to the Germans themselves, with French, American and British engineers serving as advisors and prodders.

The French have been most successful, measured by the number of semi-permanent bridges that are in service or soon to be finished. At the same time, they have fewer bridges than the British, and the military bridges in their zone were greater hazards to traffic than those in the American Zone and so had to be removed promptly.

One gets the impression that each of the three powers is operating under a different bridge philosophy. The French go ahead with rebuilding on the old alignments, scouring the country for any kind of a span that will fit. They needed a span at Chalampe to complete a vital railroad crossing so they floated one up from the railroad bridge at Briesach. Now they are rebuilding Briesach as a highway bridge, sliding the salvaged side spans into the main span position and completing the approaches with some of the fish-belly trusses that were used in the floating harbor installation for the Normandy invasion. The French must be credited with much ingenuity and great drive in their rebuilding efforts in their zone.

In the American Zone we had the Germans put in a railway bridge at Mannheim of three truss spans of 330 ft. each, but the military highway bridge at this point as well as the military highway and railway bridges with single channel 175 ft. spans at Mainz still exist. Colonel Twitchell had German firms prepare designs for these points



***Lone Tower**—All that remains of what was reported to have been the longest suspension span in Europe is this steel tower at Rodenkirchen. The two carried a main span of 1,244 ft. Bridge was wrecked by Allies almost immediately after it was completed by German engineers.*

more than a year ago, but until recently no action was taken. All of these bridges should be under way soon.

The American Zone leads in clearance of wreckage. More heavy cranes were at our disposal, and we have used them effectively. Great piles of wreckage from the Mainz bridges line the banks of the Main River near Colonel Twitchell's headquarters, and it is his fond hope to trade this scrap for new steel for more Rhine bridges.

The British bridge philosophy differs from the other two in that it calls for rebuilding in as near a permanent state as possible. They call their bridges "medium-term," but the structures will easily be good for 20 to 25 years. Some of them are structurally unique. To operate on this philosophy requires sizable quantities of steel and, as a consequence, the work goes slowly. But progress is being made, and considering the heavy industrial character of the region, which requires good bridges, the philosophy appears sound.

In considering the whole Rhine problem, however, one is struck with the desirability of better coordination and closer cooperation among the three zones. Until this trip, the engineers from one zone had never seen many of the bridges in the other zones. An overall river and harbor district such as exists on American rivers could work wonders for the Rhine.

We passed the remains of two notable bridges built during the Nazi regime upon which only fragmentary information and rumor ever reached the U. S. One of these is at Frankenthal just downstream from Mannheim, the other at Rodenkirchen just upstream from Cologne.

The Frankenthal bridge consisted of two plate girder spans of 543 ft. each, probably by far the longest of this type ever attempted. Four girders wide with heavy haunched diaphragms, the cross section resembles a box. It was fabricated of high strength ST 52 steel. One span was erected, but the other collapsed during construction when a falsework pier settled. The bridge was never completed because of shortage of steel during the war.

The Rodenkirchen bridge was a suspension structure of 1,244 ft. main span, and thus the longest in Europe and 210 ft. longer than the famous Cologne-Mulheim bridge, the only other that crossed the Rhine in a single span. The Rodenkirchen bridge is said to have been destroyed by an Allied bomb, but if this is so it was by a lucky hit on the cables for the towers still stand undamaged except for a shell hole in one of the cross struts. These towers are imposing structures in which the only traverse bracing consists of a strut at the top. The bridge, on one of the new autobahns, will not be rebuilt, and preparations are being made to dismantle the towers for use in plate girder bridges elsewhere.

It was not possible to ignore the scenic and romantic aspects of the Rhine, particularly in the gorge section. A traffic waterway since Roman days, watch towers, castles, abbeys and picturesque villages line its banks.

Victor Hugo wrote prose about this part of the Rhine, and Wagner composed famous music.

Metternich, the great Austrian prime minister of the Napoleonic era, lived in Castle Johannisberg between Rudesheim and Bingen. In fact, it was presented to him by the Austrian emperor for his part in the Congress of Vienna in 1814 where the peace treaty among Austria, Prussia, Russia, France and Great Britain was drawn up to settle conditions that resembled the international situation as it exists today.

The only disappointment in the Rhine gorge section was Lorelei Rock, a mountain so bare and uninviting that the legend of a nude goddess combing her hair and enticing enthralled bargemen into the Rhine whirlpools becomes incredible. The sunny slopes of the neighboring hill, terraced with beautiful vineyards, would seem a much more likely place for a sun bath.

The respite from memories of war furnished by the Rhine gorge is welcome but brief. From there on to the Ruhr the signs of destruction increase in geometric proportion. The greatest fury of our bombing was reserved for this great industrial area 95 x 65 miles

***Clearance Operation**—Typical of work now being carried forward along the Rhine is activity at one of the piers of the wrecked highway bridge at Mainz. Debris was first piled on pier abutment to clear a working channel and is now being removed.*

in extent. Its cities consist largely of cleared streets through piles of beaten-up masonry, and its factories are tangled junk heaps. Rebuilding on any kind of a complete scale is unthinkable. Only makeshifts of vital structures such as public buildings, fire stations, telephone exchanges and the like are given major attention. Private citizens attempt to repair their own houses, but with mediocre results. Those who don't own property, or maintain questionable title to a useless heap of rubble, live like rats in damp and dark cellars.

Reconstruction in Europe awaits revival of the Ruhr. Industry lacks coal. Coal depends upon food. Despite some hoarding on the farms and maladjustment of distribution, food from Germany is being used effectively, but even if all of it were available it would be insufficient. America in spending $250 million on food for Germany is probably doing about half what she should as a business investment.

Just keeping the Ruhr alive is not doing us or the world any good, and is akin to pouring sand down a rathole. What is needed to reduce our occupation cost and the drain on the American taxpayer is revival of Ruhr industry so that it can produce some dividends.

Needed is a settlement of the reparations question. As it is now, few Germans will attempt to reopen a factory or a mine that may be dismantled and carted away. This is in the face of the fact that many installations, despite their wrecked appearance, contain much that is undamaged. Amid the vast junk pile that was the great Krupp works at Essen there are numerous buildings and many machines that are usable. As an example, the locomotive repair shops here are in operation although it re-

quired the removal of 70,000 tons of rubble and other material.

We and the British are embarked on a joint operation to develop an export-import program for German industry. With what they sell they can buy what they need and reduce our occupation cost and perhaps pay some of the investment back. Last year exports totaled $160 million. This year they are not going to be much larger. Timber, coal, salt and hops are the principal items. These are raw materials, and what Germany needs to sell are finished products such as cameras, china, leather good toys, machinery and precision instruments, which are only beginning to trickle through. As a measure of Germany's predicament it may be noted that in 1938 the value of her exports was about $1.6 billion. Much of this she will never get back and never should, but it is to our interest that she get enough to pay her way out of American charity.

Germany's disease is in the Ruhr, the economic heart of the country. She has a lot of other ailments too, and if there is any criticism of our policy it is that we trying to alleviate some of these before we really attack the major one. Education in democracy, denazification and all of the other things are fine, but until we solve the Ruhr industrial problem we are wasting our time. People with a hopeless future, starvation food and allowances, and no housing are not good educational prospects.

Once the food problem has been solved, coal can be mined and industry started on a reasonable scale. With the steel that is made in the Ruhr, the Rhine bridges can be completed, housing materials manufactured and exportable products made that can start paying for imports. The American people should back up their occupational authorities in all attempts that they propose to speed the time when the Ruhr heart can start pumping again.

European Notebook correction

Waldo G. Bowman's report on observations in Bermuda (*ENR* June 5, vol. p. 907), where he stopped en route to Europe, incorrectly stated that the buildings at Kindley Field were built by the F. H. McGraw Co. This error was made in editing Mr. Bowman's original copy in the New York office. The Kindley Field installation for the use of our Army was made by Bermuda Base Contractors, a combination of Arthur A. Johnson Corp., Vermilya-Brown and the Necaro Co., all of New York. The McGraw organization did some dredging on this project, but was primarily engaged on a Navy contract elsewhere on the island. . . .*Editors*

Conflicting flood control efforts deprecated at Indianapolis meeting

Flood experts and officials from 12 midwest states gather at conference to discuss best plans and methods.

Need for clarification of conflicting rulings by government agencies affecting the extent and cost of federal flood control projects was stressed at a recent 3-day meeting of the Midwest Flood Control Conference. The session—first held by the group—attracted representatives of 12 states to Indianapolis, Ind.

Richard Batley, chief engineer of the Pennsylvania Department of Forests and Waters, cited instances of ambiguous rulings from the Army Corps of Engineers and other federal agencies which, he said, involve different allocations of cost for practically the same kind of levee work, differences in cost of bridge alterations, different methods of determining benefits and estimating damages in flood control plans.

David Harker, chief engineer of the Indiana Flood Control and Water Resources Commission, declared Midwest cities and farms are too far developed to combat floods through "flood escape measures."

Harker cited these four methods which the Indiana Commission believes must be used for efficient flood control:

1. Retarding water runoff through reforestation, terracing, sodding and strip cropping; (2) Retention of runoff by dams and reservoirs; (3) Local protective levees and flood walls, and (4) Channel improvement.

Thomas R. Landon, director of the Kentucky Highway Department Division of Planning, asserted that Kentuckians, in general, regarded control as a matter of checking flood sources upstream.

Lively discussion came up over the national and state aspects of flood control planning. It was pointed out that flood control men differentiate between the two points of view by explaining that the national approach is an "interstate attack which now centers on curbing the flooding of the lower Mississippi."

Harry W. Hill, chief of the Illinois division of waterways, said one reason the national flood control program has not been more helpful to local flood control, is the lack of state programs which could be coordinated when Federal plans were in development stage.

Praise Indiana law

Indiana's flood control law was praised by Lieut.-Gen. R. A. Wheeler, chief of the Army Engineers, as "one of the most comprehensive and progressive ever enacted." He explained "the significant feature of the Indiana law is that it combines in one commission the responsibilities of flood control and water resources development and provides the commission with adequate authority to discharge its responsibilities. Such concentration helps by facilitating planning and preventing costly revision of planning."

State delegates and Federal representatives attending the final session called for unification in establishing reservoirs and levees and in promoting reforestation and soil conservation.

***Cutoff Completed**—Bureau of Reclamation engineers inspect completed section of concrete cut-off wall for the 10,000-ft. south dam of the Columbia Basin irrigation project. The wall is grouted to lava bedrock. The dam is being constructed by Bair-Crick Co., Spokane, Wash., under a $2,771,000 contract, will be the principal structure in creating an equalizing reservoir for Columbia River water pumped in from Lake Roosevelt.*

HIGHLIGHTS OF MUNICIPAL DEVELOPMENTS

Summarizing current activities in city engineering and construction throughout the country

Cleveland begins preliminaries for construction of rapid transit system—Houston, New Orleans announce plans for terminals—May use Lake Erie water for industrial cooling processes—Propose building code revisions at Honolulu and Chicago

Cleveland city engineers were at work last week on detailed plans for the construction of the first leg of the city's long-planned rapid transit system, after the city council approved issuing $22,000,000 in bonds to finance the initial work.

Actual construction on the first part of the system—extending from Public Square to a point about 4.24 mi. west at Madison Ave.—is expected to get under way by October, and the unit may be placed in operation by early 1949. Much of the engineering work has already been completed, and engineers are now at work on alignment of the route. Scheduled for work this year is a 2,000-ft. tunnel at the west end of the Detroit-Superior street bridge, grading of a large part of the route, and a start on the nine bridges and ramps that will lead surface cars into the rapid transit right-of-way.

Present plans call for Public Square to serve as a downtown terminal, but long-range programs envisage the use of a part of the existing railroad terminal on the square, when the eastern leg of the rapid transit system is built.

Working along somewhat similar lines—the placing of surface-car lines underground in the business district—engineers for Toronto, Ont., reported last week that construction may start next year on the proposed Yonge St. Subway.

The narrow street—a main business artery of the city—will have subway construction under 3.20 mi. of its 4.56 mi. length, with the remainder of the track in an open cut. The line is expected to carry 10-car trains that will have a total capacity of 40,000 passangers per hour in one direction. Cost is estimated at about $28,850,000.

Terminals for freight

Two major terminals—one a railroad center and the other a produce center—involving the expenditure of more than $6,000,000, will be built at Houston, Tex., and New Orleans, La., according to announcements last week.

Biggest of the two will be a $4,000,000 wholesale produce terminal, sponsored by a committee of the Houston Fresh Fruit and Vegetable Association, to provide housing for all produce groups of the area and to handle all perishable cargo shipments into the city.

At New Orleans, representatives of the city's Association of Commerce, railroads and business houses announced plans for a $2,000,000 rail-freight terminal in the downtown area. The terminal would consist of four buildings, each providing office and storage space, with tracks between them for easy handling of material.

Anti-pollution moves

In an effort to abate pollution in the Niagara and Buffalo Rivers in western New York State, by increasing the flow of water during summer months, representatives of five major industries met recently with officials of the state Health department and indicated acceptance of plans for use of Lake Erie water for industrial cooling processes. The state would supply the water at an estimated cost of slightly less than 10 cents per 1,000 cu.ft.

Engineers said that the addition of some 130 mgd. to the Buffalo River flow will improve the condition of the stream by maintaining constant flow and decreasing pollution.

Another western New York city—Niagara Falls—began a controversy with local industry over stream pollution at a hearing conducted by the Corps of Engineers. The city objected to the granting of a permit to a dredging concern that plans to remove some 250,000 tons of sand and gravel from Strawberry Island in the Niagara River. City officials claimed that this operation would leave little but the shell of the island—which would soon be washed away completely—and the city's water supply intake at a point near the existing island would be endangered by receiving the full flow of the stream.

And in Fort Myers, Fla., all available workers were rushed to build sandbag levees around pools of contaminated water leaking from a pine-tar plant that threatened to inundate the city's only usable well field. The water plant was shut down until emergency diking had proved successful in keeping the contaminated water from the wells.

Plan code revisions

Revisions on building codes and zoning ordinances in the light of new developments concerned Honolulu, Hawaii, and Wilmington, Del., while Iowa appointed a commission to revamp the state's building code.

At Honolulu, Mayor John H. Wilson—a construction engineer whose election a year ago turned partially on a promise to overhaul the code—appointed a committee to consider changes. Proposed revisions would increase the height limit from 6 to 12 stories; liberalize restrictions on spacing and requirements for home construction.

In Wilmington, Mayor J. S. Wilson advanced a plan to rezone stretches of

CARD INDEX CITY STREETS

Accurate determination of the life of city streets is being studied by the department of public works in Milwaukee, Wis., which is completing a comprehensive index of 25,000 cards prepared as the result of a city wide survey.

The primary function of the system is to aid in the planning of pavement and street reconstruction. Through the cards, Milwaukee's 824 miles of streets will be inventoried, evaluated and analyzed, so that the department may provide readily for a continuous maintenance program.

SEATTLE SETS UP FUND FOR PIPE PURCHASES

Setting up of a $400,000 revolving fund for the purchase of cast iron pipe, to be sold at cost to contractors on watermain installations, has been approved by the Seattle, Wash. city council.

The city has an immense backlog of water main installations that are being held up because it takes from one to two years to get delivery of pipe in small, individual purchases, according to Robert Jones, chairman of the council's utilities committees. By placing orders for a large supply of pipe, the city expects to save many months in getting improvements under way.

the area bordering the business district for business use, as a device to encourage new business construction, and to increase property valuation.

Acting in accordance with an act of the recent legislature, Gov. Robert D. Blue of Iowa appointed a 10-man state building code council, which includes in its membership Frank Kerekes, assistant dean, division of engineering, Iowa State College. The legislature had directed the appointment of the committee to draw up a new building code, for submission to the 1949 session.

To test Chicago code

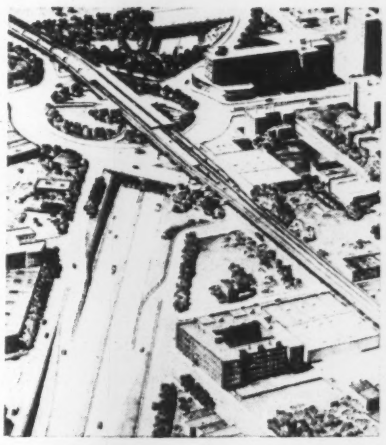
A tentative draft of Chicago's new building code will be submitted within the next week to a group of engineers and architects for critical analysis, according to John O. Merrill, director of revision of the building code and member of the architectural firm of Skidmore, Owings and Merrill. With the exception of certain mechanical engineering sections, covering such features as wiring, elevator installation and ventilating equipment, which require further study before a preliminary draft can be completed, all important sections of the new code will be submitted at once to the jury of consultants for practical test by applying the various standards to actual building plans.

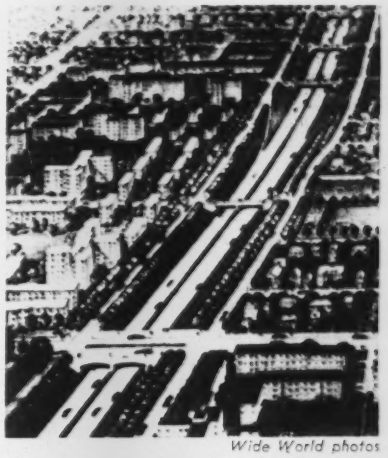
The present group of consultants, retained on a part-time basis, consists of ten architects and structural and mechanical engineers, most of them from Chicago. Other consultants will be called in later. The code also will be reviewed by the National Bureau of Standards and by staff members of the Illinois Institute of Technology.

Code tested before adoption

By the method of practical analysis, Mr. Merrill explained, the city's committee for revision of the building code expects to produce a clear and understandable document which already will have undergone thorough testing before it is presented to the city council for adoption. Consulting work on the new code will be finished by September. 1, when drafting of the final version is to begin. The deadline for presenting the code to the council is Nov. 1.

A code based on performance standards is important for the long-range program of redeveloping Chicago's blighted areas, Merrill emphasized. "Existing building codes have definitely discouraged urban redevelopment," he said. "The unprecedented volume of construction required for such redevelopment requires the unhampered ingenuity and skill of the building industry."





Wide World photos

***Highways Plans**—Seeking to provide for future automobile traffic needs as well as present-day problems, many cities have made elaborate plans for express and through highways to route traffic around or below normal business activity. At left is sketch of a plan for Grant Circle in The Bronx, N. Y., where the proposed Cross-Bronx Expressway would go under existing streets and an elevated railway structure; and at right is the design for a section of the John C. Lodge expressway which Detroit, Mich., hopes to build when funds become available.*

Plans for planning

Four cities were among those reporting steps toward unified city plans for engineering and development work.

Pittsburgh, Pa., considered a proposal that a "steamlined" plan be adopted to integrate and improve the operation of its varied rapid transit systems.

A report prepared by the Allegheny Conference on Community Development urged construction of a downtown streetcar subway; establishment of new "through express" systems for buses and streetcars; banning of on-street parking during business hours, and establish direct transfer stations from suburban railroad terminals to street-cars.

Utica, N. Y., awarded a $45,000 contract to Harland, Bartholomew and Associates of St. Louis, Mo., to prepare a master plan for the city; Huntington, Ind., approved an ordinance creating a city planning commission; Indianapolis began a program of overhauling its traffic-light system to conform with national standards; and Minneapolis, Minn., officials revealed a plan for the future construction of a huge merchandise mart that would house a hotel, a theater, and a parking garage, in addition to business offices and showrooms.

Tacoma seeks power sites

Investigation of new power sites on the Cowlitz River south of Tacoma, Wash., has been recommended to the Tacoma City Council by the W. C. Gilman Co., of New York City. Present generating facilities are adequate for present peak load requirements under conditions of normal stream flow, but since normal conditions cannot be depended upon and the city is already forced to purchase power to serve existing loads, the report of the New York firm estimated that the continued growth in load would require at least 50,000 kw. in added system capacity within two years, and a further increase up to 100,000 kw. by 1960.

The city was urged to authorize an issue of about $32,000,000 in revenue bonds to finance a possible $20,000,000 in hydroelectric plant construction, and $11,000,000 in construction other than power plant development.

Sink-hole sewer backs up

The "sink hole sewer system" that nature provided the city of Bellevue, Ohio, should be abandoned and replaced by a modern system, according to Rollin F. MacDowell, Cleveland consulting engineer.

A long period of rain recently overtaxed the sink holes scattered throughout the area, and caused small flash floods, particularly in the east end. Angry residents have charged that their section is becoming a "sewage disposal plant" for that city. The residents said that the stagnant water in their district was "pumped there by the city." Plans for a proposed sanitary and flood sewer survey are to be submitted this month.

ASTM groups review engineering data

To examine the great volume of engineering data that has accumulated in recent years, with a view toward formulation of standard test procedures and specifications, the American Society for Testing Materials held several symposiums on key subjects at its 50th Annual Meeting in Atlantic City, N. J., June 16 to 20.

Changes in standards that were approved at the convention were given in *ENR* June 26, vol. p. 991.

The growing importance and use of composite construction, in which two or more materials are combined to take advantage of special attributes of each, led to the selection of this topic for the 21st Edgar Marburg Lecture and of Walter C. Voss, head of the Department of Building Engineering and Construction, Massachusetts Institute of Technology, as lecturer.

Pointing out the important role played by adhesion in engineering laminates, Prof. Voss explained in terms of various types of chemical bond the forces acting when adhesion takes place.

The symposiums included sessions on soils and load tests of soils, on concrete and measurement of entrained air in concrete on plastic deformation of metals, and on plastics and wood.

Six papers were presented in the symposium on load tests of soils. The consensus of the authors was that their experiences demonstrated the reliability and accuracy of load tests in evaluating the bearing capacity of soils.

In the symposium on soils, G. A. Kerkhoff and W. S. Hansel, Michigan State Highway Dept., presented a paper, "Uplift Soil Pressure on Bridge Foundations in Clay Revealed by Shear Tests". Measurements obtained with pressure cells were used to check design soil pressures at footings of grade separation structures in Detroit, which were based on the results of "ring shear" tests. The authors also discussed the stability of abutment fills and embankment slopes on plastic clay soil, which was a major design problem in the River Rouge section of the Detroit Industrial Expressway.

Symposium on concrete

Eight papers were presented in the symposium on measurement of entrained air in concrete, comparing the existing two ASTM methods with several other recently developed procedures. Methods discussed included the gravimetric, volumetric, rolling, pressure, and the Indiana and Ohio methods. Some preference was expressed for the pressure method because it is rapid and economical, and good correlation has been obtained with other accepted procedures, but it was pointed out that other methods have advantages in that they use the same apparatus and data for other necessary tests, such as for yield determinations.

A. G. Timms, W. E. Grieb and George Werner, Public Roads Administration, discussed the results of tests of concrete made with seven natural cements and a slag cement blended with each of three different non-air-entraining portland cements in their paper, "The Effect of Blends of Natural and Portland Cement on Properties of Concrete." Comparable tests with two air-entraining portland cements were also made. Results indicate that, regardless of cement combination, the compressive and flexural strength of concrete at all ages of test is inversely proportional, and the resistance to freezing and thawing directly proportional to the air content.

Discussing this paper, Ira Pauls, N. Y. State Department of Public Works, said that he believed that the improved resistance to freezing and thawing was not due to the air content but to an integral waterproofing by the admixture present, which coats the aggregates. He claimed that equally good results have been obtained by incorporating a waterproofing agent in the mix. However, all other discussers supported the air entrainment theory.

"Methods for the Determination of Soft Pieces in Aggregate," a paper by D. D. Woolf, Public Roads Administration, presented a simple, useful procedure as a consequence of numerous trials. Aggregate can be tested for hardness by scribing with a pencil of hard, yellow brass (Rockwell hardness B64 to B86), the soft pieces being determined by the leaving of a scratch.

W. C. Hanna, California Portland Cement Co., discussed "Unfavorable Chemical Reactions of Aggregates in Concrete." He proposed addition of certain pozzolanic material to the cement to control the activity of the aggregate when unsatisfactory reaction is encountered.

Metal problems

A useful method for predicting that a particular metal part will fail in normal service was described by P. E. Cavanagh, Cyclograph Services, Ltd., in his paper, "The Progress of Failure in Metals as Traced by Changes in Magnetic and Electrical Properties." Easily detectable changes in magnetic and eddy-current losses occur at loads above the endurance limit, according to tests made in the rotating beam machine, and this fact may be used to determine whether a part may fail in an unreasonably short time.

In a paper, "A New Type of Magnetic Flaw Detector," Carlton H. Hastings, Watertown Arsenal, reported on the use of an electric-magnetic pick-up coil, sensitive to the magnetic leakage caused by flaws in steel magnetized by direct current and connected to an electrical indicator. Cracks in the bore surfaces of tubes, as well as on flat, accessible surfaces, were readily detected and chart records showing their presence were made.

In the session on wood and plastics, E. George Stern, Virginia Polytechnic Institute, discussed the "Influence of Nonhomogeneity of Wood on Its Strength Properties," as expressed by variation in specific gravity. He warned that disregard of these variations may result in misleading test information not truly representative for the material under consideration.

Also in this session, a paper by G. S. Brown, G. S. Burr, W. J. Gailus, L. D. Lipshutz, J. O. Silvey, S. Yurenka and A. G. H. Dietz, all of the Massachusetts Institute of Technology, described a universal plastics machine. Since the values obtained for the properties of many plastics are dependent upon the rate of stress application, the testing machine was built to provide constant rate of crosshead motion, of load and of true strain at crosshead speeds ranging from 0.01 to 25 in. per min. Complete control is maintained in the loading, unloading and reversed loading cycles and is independent of the load or the characteristics of the hydraulic fluid. Loads are measured by resistance wire elements and are recorded electronically.

THE COVER PICTURE

Said to be the biggest natural gas pipeline ever built, 60-in. dia. steel pipes are inched across the Colorado River on the Arizona-California border to form a part of a 1,200-mi., $60,000,000 line that will deliver fuel from Texas fields to Los Angeles.

The spidery cable network is suspended from two 116-ft. towers, stabilized by horizontal catenary trusses, that will carry the pipe across a 1,020-ft. clear span over the river. Workmen at center, guiding the pipe into the cradles as it is shoved out from the shore, look tiny against the 60-ft. pipe sections used . . . *(Wide World photo)*

House group approves $252 million for Army's civil works construction

Appropriations committee recommendation is $56 million below amount approved by budget bureau

An appropriation of over $252,000,000 for civil works construction by the U. S. Army Engineers is provided for in the War Department Civil Functions Bill as reported out by the House Appropriations Committee June 27. This total is $56,000,000 less than the amount approved in the 1947 appropriation.

For general flood control work, the committee recommended a total of over $132,000,000—$31,000,000 less than the budget estimate. Largest of the approved amounts are: Allatoona Reservoir, $6,572,100; Bluestone Dam, $5,000,000; Center Hill Reservoir, $5,703,000; Conemaugh River work $5,200,000; Whitney Reservoir in Texas, $4,625,000; Wolf Creek Dam, $4,000,000; Garrison Reservoir, $6,500,000; Harlan County Reservoir, $3,775,000; Fort Gibson Reservoir in Oklahoma, $4,700,000; Fall River Reservoir in Kansas, $3,000,000; and Buggs Island Reservoir, $3,800,000.

Other large flood control funds are: Bull Shoals Reservoir in Arkansas, $3,000,000; Almond Reservoir in New York, $1,600,000; Buffalo Bayou Project in Texas, $1,654,700; Lookout Point Reservoir in Oregon, $2,850,000; Canton Project in Oklahoma, $2,000,000; Wister Project, also in Oklahoma, $2,950,000; Cherry Creek Reservoir in Colorado, $2,700,000; Clark Hill Dam on the Savannah River, Ga., $1,481,000; Clearwater Reservoir in Missouri, $2,000,000; Delaware Dam in Ohio, $1,800,000; Detroit Reservoir in Oregon, $1,000,000; Dillon Dam in Ohio, $2,000,000; Dorena Reservoir in Oregon, $1,750,000; Elmira, N. Y., project, $1,600,000; and Kanoplis Project in Kansas, $2,000,000.

Funds for flood control also include: Hords Creek Reservoir in Texas, $1,103,000; work at Kansas City, Mo., $1,800,000; Los Angeles River in California, $1,314,000; Narrows Reservoir in Arkansas, $1,761,500; work at Portsmouth-New Boston, Ohio, $1,400,000; San Gabriel River in California, $1,085,000.

For flood control work on the Mississippi River and its tributaries a total of $24,500,000 is provided. An appropriation of $1,000,000 for work on the Sacramento River in California is also recommended, as is $3,500,000 for surveys and examinations, and $2,000,000 for detailed flood control planning.

Rivers and Harbors money, including maintenance and operation, totals over $95,000,000. This includes $17,367,000 for continuing construction of several projects, $50,000,000 for maintenance work, which will include considerable construction, $20,000,000 for operation, and $3,645,000 for surveys and contingencies.

Largest of the amounts approved for continuing construction projects are: Umatilla (McNary) Dam in the Columbia Basin, $3,000,000; Mississippi River between Ohio and Missouri Rivers, $3,000,000; Missouri River between Kansas City and Sioux City, $2,500,000.

Construction money provided for the Panama Canal Zone totals $3,209,000.

Oklahoma has large fund available for roads

Gov. Roy J. Turner of Oklahoma said last week that state and federal funds available for a highway construction program there between now and the end of 1948 will amount to $35,000,000. This will include about $21,000,000 for farm-to-market roads and about $14,000,000 for urban and primary road construction on the federal system.

In addition, the highway department will spend $17,000,000 for maintenance, administration, equipment purchases and emergency projects.

A law creating an Oklahoma Turnpike Authority has been passed and the governor will appoint four members to serve with him on the authority which will supervise the proposed, 85-mile long 4-lane express toll highway between Oklahoma City and Tulsa, to be financed by bonds.

PERSPECTIVE . . . .

Atom Policy Shift

A change in the emphasis of the U. S. atomic power policy—a shift that will put greater emphasis on increasing of fissionable material (for bombs) and push industrial and beneficial applications of the atom into the background, has become apparent recently. This shift makes it appear that the construction of atomic central-station power plants is now farther away than it was a few months ago.

Administration policy now seems to be based on the assumption that negotiations on the international control of atomic energy are getting nowhere, and that it behooves the United States to gird for a production race.

Power generation work has not been abandoned by any means. For one thing, at the present stage of development there is practically no distinction between work on industrial power and work on atomic power for ships and aircraft. And even where a distinction exists, much preliminary work can be done in utility-type power generation without serious conflict with immediate military projects.

In the main, the Atomic Energy Commission is not so much changing the elements in its program as revamping that program to telescope the time factors on the direct military applications and to stretch out the time factors on civilian applications.

The current shift in AEC planning goes far to explain the bafflement of electric power people—both public and private—who have found themselves unable to get any very realistic help from the commission in planning their operations to take account of the coming impact of nuclear fission.

Private utility men have been irritated and puzzled by the polite, but innocuous, level at which meetings between AEC and the Utility Advisory Committee have been conducted.

Similarly, Interior Department power officials have received no guidance as to integrating the atom into their planning for western power needs. They have a perhaps less immediate interest than the private utilities, since most guesses as to cost of atomic power fall into the range of coal—rather than hydro—costs. But they are conscious that they ought to be thinking beyond the first atomic installations.

Additionally, the Interior Department has to think about the effects of byproduct atomic energy at plutonium plants. If, for instance, the Hanford plant should be rebuilt in a way to utilize the million or so kilowatts now dumped into the Columbia River, it would greatly modify the present load and future requirement situation for the bureau's work in the northwest.

MEN AND JOBS

Commanding officers have been assigned for the Civil Engineer Corps Reserve in the Potomac River Naval Command. The Washington, D. C., reserve organization will be set up as a regiment of four battalions. Assigned as commanding officer is **Capt. Daniel Ventres** of Washington, D. C., while the executive officer is **Comdr. John J. White, Jr.**, of Arlington, Va., Battalion heads are: First Battalion—**Comdr. George A. Nelson**, Bethesda, Md., commanding officer; **Lieut.-Comdr. Wilbur R. Garrett**, Rockville, Md., executive officer. Second Battalion—**Comdr. David H. Gottwals**, Washington, D. C., commanding officer; **Lieut-Comdr. James T. Redd**, Arlington, Md. executive officer. Third Battalion—**Comdr. Merrell A. Coe**, Washington, D. C., commanding officer; **Lieut.-Comdr. Leonard G. Haeger**, Washington, D. C., executive officer. Fourth Battalion—**Comdr. J. E. Larson**, Alexandria, Va., commanding officer; **Lieut.-Comdr. John P. Mutchler**, Kensington, Md., executive officer.

Discussing problems involved in piping Saudi Arabian oil are Lief J. Sverdrup, of St. Louis (left) and Steve Bechtel, Sr., of the Bechtel Corp., pose aboard ship while awaiting their recent departure for England.

William Williamson of Toronto, Ont., celebrated his 90th birthday on June 9. He was a general contractor in business for 60 years.

Robert Mayo, Jr., chief mechanical engineer of the Office of Supervising Architect, Public Buildings Administration, is retiring after 43 years of government service. He took his degree in engineering at Massachusetts Institute of Technology. After working for the Baldwin Locomotive Co. and the U. S. Steel Corp., he entered the Office of Supervising Architect in 1906 as a draftsman. From 1905 to 1911, he was sanitary and heating engineer for the Quartermaster Corps of the Army. Since then he has been continuously in the Office of Supervising Architect, where he has had a leading part in designing the mechanical and electrical equipment of federal buildings in all parts of the United States and territories.

John Mangolds, city engineer at Marshfield, Wis., has resigned.

Virgil Butler, Council Bluffs, Iowa, has been promoted from resident to assistant district engineer by the Iowa State Highway Commission and will be one of the two assistants under John Butler, district engineer at Council Bluffs. The other assistant is **B. J. Conlon.** Mr. Butler is a graduate of Iowa State College at Ames and joined the highway commission in 1927.

The board of county commissioners of Ramsey County, Devils Lake, N. D., has reinstated the position of county engineer, which was abolished in 1943, has renamed **A. S. Marean,** who held that same position formerly.

Thomas Mackey, engineer and land surveyor, was appointed city engineer at Mankato, Minn., recently. He succeeds **A. M. Kircher** who plans to enter private practice after 14 years service as city engineer. Mr. Mackey began work in 1914 with a drainage contractor in Waseca County and was appointed assistant city engineer at Waseca in 1919. He was Waseca County surveyor from 1926 to 1935.

Harvard C. Rempfer is successor to **E. W. Meeker** as South Dakota State highway engineer. Mr. Meeker recently resigned to accept a position as manager of the Rapid City branch of the Empire Equipment Co. Mr. Rempfer has been acting district engineer at Mitchell, S. D., and prior to that was resident state highway engineer at Sioux Falls, S. D.

Deloss H. Barber, district engineer of the U. S. Geological Survey at Montgomery, Ala., in charge of surface water investigation in Alabama and Mississippi, has resigned because of disability. He was with the Engineer Corps in the first world war and had four years active service in the last war, having been discharged with the rank of colonel. His successor is **Melvin R. Williams,** a graduate of Georgia Tech, recently on a 6 months' assignment to Japan on an evaluation of the water power re-

Alexander G. Martin (left) of Kenmore, N. Y., president of the New York Sewage Works Association, and Thomas R. Camp, of Boston, Mass., president of the New England Sewage Works Association, compare notes at a recent joint meeting of the two organizations held at Albany, N. Y., where matters of mutual interest were discussed.

Ray McNeil, field engineer for the Bureau of Reclamation on the construction of the Coachella (California) Canal Project, strikes a pose for an ENR editor-photographer.

sources. **Irving E. Anderson** has been appointed district engineer for surface water investigations in Mississippi at Jackson. He is a graduate of the University of Minnesota. For the last five years he has been engineer in charge at Jackson under the district office at Montgomery.

Frank J. Sheridan, consulting engineer at Sioux Falls, S. D., has removed his offices from 406 Minnehaha Building to No. 11, Lacotah Building. He specializes in waterworks, sewage disposal, airports, street improvements, power plants and land survey.

S. M. Helgeland, New Hampton, Iowa, engineer for Chickasaw County, since last fall, has resigned.

Robert E. Eddy, county highway engineer for Gage County with headquarters at Beatrice, Neb., for the last six years, has resigned.

W. A. Thompson, Jr., general partner of Petroleum Maintenance Co., engineers and contractors, Long Beach, Calif., and associates have left for Mexico City to negotiate with the Mexican government for the construction of several projects. They will then leave for Nicaragua where Mr. Thompson will inspect his construction program in that country. He is also going to Puerto Cortez, Honduras, to inspect the site of another project which will be under construction this summer, and will then leave for Balboa in the Canal Zone to open offices in that city.

N. C. Michels, formerly a member of the engineering staff of the Gary Steel Works of the Carnegie Illinois Steel Corp. has been appointed chief engineer of the Laclede-Christy Clay Products Co. of St. Louis, Mo., to coordinate engineering activities of the company, including a proposed program for plant modernization and rehabilitation and the application of refractory products to suspended arches and sectionally supported walls. **E H. Krautheim** has been appointed assistant chief engineer in charge of plant engineering and maintenance and **Les Mueller,** assistant chief engineer of the arch and wall division. **Herman W. Weber,** formerly chief engineer of the arch and wall division, has been added to the executive staff as consulting engineer.

H. Paul Christy, Mt. Vernon, Ohio, Division Five engineer for the Ohio Highway Department, has resigned to go into other work.

Alfred C. Stiefel has been appointed topographic engineer in the Plans and Coordination Division of the Topographic Branch of the Geological Survey in Washington, D. C. He formerly was hydraulic engineer with the Colorado Water Conservation Board at Denver, Colo.

Perry K. Miller has taken offices in the Raymond Commerce Building at 1180 Raymond Boulevard, Newark, N. J., under the name of Standard Materials & Service Co. He was a member of Miller & McGiffert, municipal engineers, Montclair, N. J., for 22 years. He served in World War I and II, and has recently been placed on the inactive list of reserve officers as a lieutenant colonel.

Chas. H Davey has been assigned as chief of the topographic surveys section and **Russell K. Bean** to serve as acting chief of the photogrammetry section in the Research and Technical Control Division, U. S. Department of the Interior.

L. W. Cook and **R. A. Zern** announce the formation of a partnership, Cook and Zern, consulting engineers, specializing in the design of structural frames and foundations, at 607 Wabash Bldg., Pittsburgh 22, Pa.

Carl Crandall, Cornell University engineer graduate, has been appointed as consultant to the Allegany, N. Y., State Park Commission for six months to provide general oversight and supervision of construction and improvement work there.

W. A. Cokes, acting city engineer of little Rock, Ark., has resigned to return to the state highway department.

Homer Jones (left) is superintendent for W. J. Tidwell Jr., contractor of Douglasville, Ga., on construction of a bridge for the Georgia State Highway Department; and W. P. Campbell is project engineer on the work.

A total of 63 years of service to the city of Jacksonville, Fla., is represented by Walter G. Daniel (left) assistant city manager, and W. E. Sheddon (seated) who has been city engineer for the last 16 years.

Leading discussions of highway affairs during a luncheon meeting at a recent spring board meeting of the Associated General Contractors at Seattle, Wash., were (standing, left to right) H. E. Foreman, AGC managing director; C. B. Shain, chief engineer, Washington State highway department; Gayle Armstrong, AGC division chairman; L. I. Hewes of Roswell, N. M., chief, western region, PRA, and D. W. Winkelman, AGC vice-president, of Syracuse, N. Y.

President okays road fund extension

President Truman has signed the bill (H. R. 1874) extending the time during which funds provided in the Federal Aid Highway Act of 1944 would be available.

The new law amends the 1944 act so that the $500,000,000 of federal aid provided for each of the three post-war years continues to be available for two years after each specific year for which the appropriation is made (*ENR* May 29, vol. p. 864).

On June 17, about $157,000,000 of federal aid provided for the fiscal year 1946 had not been obligated. This money will now be available for another year. Passage of the new bill is also expected to be of considerable value to state highway departments during the next fiscal year, which starts July 1.

The President is also expected to sign at an early date a deficiency bill (H. R. 3245) containing a $12,000,000 for emergency flood control construction.

Approve CAA funds

The Senate Appropriations Committee, in reporting out the appropriations bill for the Civil Aeronautics Administration, recommended $32,500,000 for airport construction during the next fiscal year. This amount equals that already approved by the House as a whole (*ENR* May 29, vol. p. 867) and indications are that this amount will be agreed upon.

The Senate group stated that almost all of the $45,000,000 appropriated for construction during the present fiscal year is unspent, and therefore a fairly extensive program would be possible next fiscal year. The committee suggested that the construction of buildings at airports be deferred at this time to aid the housing program. It also wrote into the bill language permitting money provided for smaller fields to be used for large airports of the class 4 and 5 size, if the money is not taken up in a reasonable time by the small field sponsors.

A bill (S. 1039) requiring that all federal aid for airport construction be distributed to local agencies through state aeronautical organization has been reported out favorably by the Senate Interstate Commerce Committee. The bill would amend the Federal-Aid Airport Act of 1946, which authorizes appropriation of $500,000,000 for a 7-year airport act with federal aid matched on a 50-50 basis. (*ENR* May 16, 1946, vol. p. 763).

Another recent legislative development was a favorable report June 25 by the House Public Works Committee on the bill (H. R. 3759) increasing the administrative allowance of Public Roads Administration from 2½ to 3¾ percent of federal-aid highway appropriations. If the bill becomes law the amount of aid available to the states would be reduced accordingly.

The House committee concluded that the PRA should be given more money for administration in view of the salary increases approved last year by Congress. The expanded activities of the PRA under the 1944 highway act were also cited.

A. M. Smith re-appointed Nevada state engineer

A. M. Smith has been reappointed by Gov. Vail Pittman to be state engineer of Nevada for his fourth 4-year term. A graduate of the University of Nevada mining shcool, Mr. Smith served on the engineering staff of the Southern Pacific Railway and as assistant to the engineer and administrator of the public works administration before his appointment as state engineer.

AED to move offices to Chicago address

Highlights of the Associated Equipment Distributors Board of Directors' recent meeting in Chicago were the decision to move the AED executive office to Chicago, the resignation of Carol F. Winchester as executive secretary, and the appointment of Frank G. Knight as his successor, according to an announcement by President William A. Danner of Boston, Mass. The move to Chicago will be made as soon as possible but not later than Nov. 1 next.

Carol Winchester, executive secretary for the last six and one-half years, submitted his resignation effective Sept. 30, and it was accepted by the board of directors. Mr. Winchester announced that he will operate his own business located in Washington, D. C.

Frank G. Knight, assistant secretary of A.E.D., for the last three and one-half years, who has been appointed to succeed Mr. Winchester, served 22 months in the War Production Board as Chief, Federal Requirements Section. His background also includes eight years of experience as manager of a casualty and fire insurance agency.

Highway building ahead of 1946 totals

Despite some early predictions to the contrary, the 1947 highway construction program is showing improvement over 1946, it is reported by the American Road Builders' Association.

According to estimates by the Federal Works Agency, the total highway construction expenditure (federal, states, county, city) for 1947 will approximate $1,250,000,000, compared with $706,000,000 for 1946.

Contracts awarded for the first quarter of 1946 totalled $113,068,000 and compared with $161,367,000 for the same period in 1947. Leading states for the first quarter include Texas, $18,172,000; Pennsylvania, $11,473,000; California, $10,629,000, and Florida, $7,740,000. The letting of highway contracts normally reaches peak figures in the second and third quarters. Hence, if the 1947 program follows the 1946 pattern, second and third quarter contract awards will triple the first quarter figures, approximating $480,000,000 for each quarter, and the fourth quarter, $300,000,000.

Federal-State highway contracts for new construction for the first quarter of 1947 amounted to $137,000,000—which was 45 percent above that of the corresponding 1946 period. The value of these federal aid state contracts showed an increase of one-third over the total of a year ago. County and municipal highway and street contracts showed an increase of approximately 30 percent.

The total number of all highway projects for which contracts were awarded for the first quarter of 1947 was 2,050, compared to 1,434 for the first quarter of 1946. The number of contracts awarded for March, 1946 was 768 and for March, 1947 was 902.

The estimated $1,250,000,000 highway construction expenditure for 1947 is approximately the same as the totals reached in 1928 and 1929 and was only exceeded in 1930 when the expenditure approximated $1,500,000,000.

Costs compared with 1925-29

Recent figures on costs by Public Roads Administration give average excavation costs at $.38 per cu. yd. for the first quarter of 1947 compared with $.35 in the 1925-1929 period. The cost of concrete pavement averaged $3.01 per sq. yd. for the first quarter of 1947 compared with $2.22 during the 1925-29 period. The cost of a composite mile of highway construction is one-third higher than that of the 1925-29 cost, which is also true of the cost of structural steel.

States consider huge highway plans

Long-range modernization of its highway system is being agitated in Ohio; Pennsylvania may spend $20,000,000 on a road project in the Harrisburg area, and three major construction programs in South Carolina have been outlined, according to announcements last week.

Modernizing Ohio's state highway system may take from 20 to 30 years and highway department engineers estimate it will cost $1,292,510,000 to bring the state's highways up to standard. Improvements include building a new express-type highway system through and between cities in densely populated areas, as well as renovating the present system.

Part of the job will begin in the summer of 1947, when bids will be accepted on multi-lane bridges and highway sections in Columbus, Portsmouth, Cleveland, Dayton, Akron, Cincinnati, and Youngstown. These projects will compose the urban development program and will be financed with federal aid, Ohio's share of which will be $40,000,000 for 1947-48.

Department engineers plan expressways to run from Cincinnati to Piqua on U. S. Route 25, at a cost of $50,000,000; from Toledo to Cleveland on U. S. Route 20 at $79,000,000; Cleveland to Painesville on U. S. Route 20 at $10,000,000; Sunbury-Columbus on State Route 3 at $8,000,000; and Ravenna-Cleveland on State Route 14 at $16,000,000. Urban expressways, to cost $23,500,000 are planned either to go through or bypass Mansfield, Springfield, Lima, and Zanesville on U. S. Routes 42, 40, and 25.

Authorize Harrisburg by-pass

Legislation authorizing a $20,000,000 highway project in the Harrisburg area, including a free bridge across the Susquehanna River, has passed the Pennsylvania House despite protests that it would "short change" rural districts.

The bill, already approved by the Senate, would authorize a new highway route on both sides of the river to bypass Harrisburg, with construction costs paid from motor funds. The city now is served with two toll bridges across the Susquehanna.

$68 million for South Carolina

Northwithstanding the dearth of men, equipment, and materials, the South Carolina state highway department now has three major construction programs in progress, C. R. McMillan, state highway engineer, said recently.

Work is now being placed under contract in these programs which are designated as "A", "B", and "C" and which have and estimated cost of $68,000,000.

Program "A", the $42,000,000 Federal Aid program, has had placed under construction work in the amount of $17,680,000. This program involves a new 2-mile crossing on Route 17 between Georgetown and Charleston; a new crossing across the Congaree River, and the construction of a dual lane on Route 1 between Aiken and Augusta.

Program "B" consists of minor road work. For this there has been approved $100,000 to each highway district with a supplement appropriation of $100,800, making a total for the state of $2,800,000.

An act of the 1945 General Assembly provided for the expenditure of at least $6,000,000 a year for three years on a "State Farm to Market System", distinguished as Program "C". This will include the building of roads which normally would not be self-sustaining. Construction will be done on a statewide basis and will directly benefit all South Carolina farmers. So far, $4,150,000 has been placed in work.

Texas road commission expands program

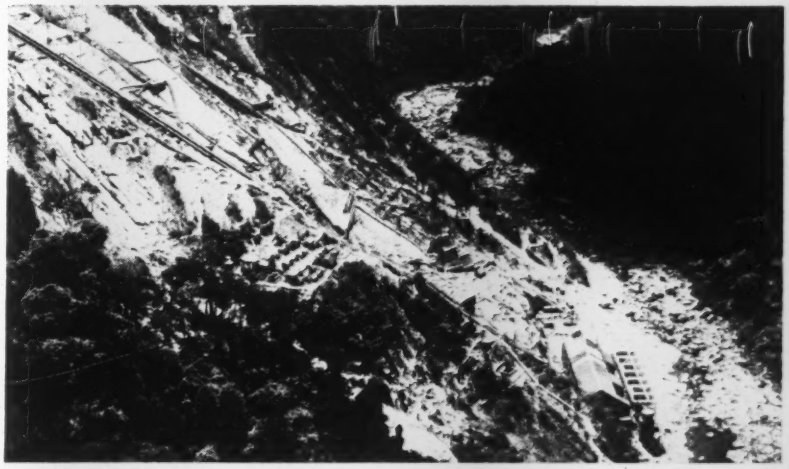
Under a new policy of the Texas State Highway Commission, adopted June 2, any county or road district desiring additional farm-to-market roads for which it will furnish the right of way and 75 percent of the actual construction cost can obtain the engineering for each project and 25 percent of the construction cost from the funds of the state highway department. In addition, as explained by Dewitt C. Greer, state highway engineer, the state will maintain the roads.

To assure state-wide distribution of the benefits under this plan, Mr. Greer stated that the new policy places a ceiling of not more than $100,000 in total construction costs in any one county in any one year. Roads to be built under the plan must comply with the standards of selection of the highway department for traffic service justifying inclusion in the state system.

Recent state legislation laid a financial foundation on which counties and road districts can put the new policy into effect. One new law gives permission to the counties and districts to enter into a cooperative plan with the state highway department for construction of farm-to-market roads.

Two other recent laws, as explained by Mr. Greer, tend to yield additional revenues for farm-to-market roads at the county level. One law covers the distribution of the surplus of the one cent of the gasoline tax that goes to the Board of County and District Road Indebtedness. The other is a constitutional amendment abolishing the state ad valorem tax and permitting such tax to be assumed by the counties and assigned to the construction of farm-to-market roads.

Roads built under the new policy will be in addition to the federal-aid secondary road program in the state.



***Indian Power Plant**—Nearing completion in the rugged mountains of northwestern Mysore State, in India, is the Jog Falls power station, expected to go into service late this year to produce some 48,000 kw. Based on the 830-ft. Jog Falls (about 2 mi. upstream of the photo), the project includes a 3-mi. channel and a storage reservoir atop the hill at left to furnish a power head of 1,172 ft. Total cost of the project is set at $17,000,000.*

ENGINEERING SCHOOL NEWS

Deficiency of engineer graduates to be made up soon—5-year course to be inaugurated at Rice Institute, Houston, Tex.

Engineers are now being graduated from the engineering schools of this country at a rate that may produce an oversupply by the end of next year, according to a report by Henry H. Armsby, specialist in engineering education, U. S. Office of Education, published in the May issue of the *Journal of Engineering Education*. Mr. Armsby's paper is entitled "A Reexamination of the Compton Report in the Light of Enrollment in Engineering Curricula, Fall of 1946," and refers to a widely publicized report of a committee headed by K. T. Compton entitled "The Outlook in the Demand For and Supply of Engineering Graduates," which was presented at the 54th annual meeting of the American Society for Engineering Education in June 1946.

The Compton report was based on a very comprehensive study of the existing and anticipated need for engineers, including replies to a questionnaire to 125 industrial companies concerning their present employment of engineers and future needs. Starting with a deficit of 8,000 and adding 23,000 engineers estimated as needed in 1946 gave a total demand for 1946 of 31,000, which could be only partially filled by the 7,000 men to be graduated in 1946, from which there were subtracted 1½ thousand who it was assumed would enter graduate schools. This left a net deficit for 1946 of 25½ thousand.

Continuing this process, the committee arrives at conclusions that the deficit of graduate engineers would be filled by 1952 and went on to say that "This means that the need for continuing engineering education at an overload level will lessen beginning with the entering freshman class in 1949."

In his review of this report Mr. Armsby says "The estimates of the committee as to the prospective supply of engineers were based on what the engineering schools had stated to be their maximum capacity of 155,000 students, including 56,500 engineering freshmen." Actual enrollments in the fall of 1946, however, amounted to around 223,000, including about 92,600 freshmen. Further, there was a sharp rise in the percentage of men enrolled in engineering as compared to earlier years.

Mr. Armsby states further that the consultant to the Compton committee in the Bureau of Labor Statistics finds that according to their statistics the country has nearly reached the theoretical "full employment" discussed in the Compton report (disregarding current strikes). He says further that the separation rate is about as high now as it was during the war, indicating that many people are transferring from one job to another. He questions whether there is any large unfilled need for engineers at the present time in industry and points out that a large number of people every year enter industry in engineering positions without engineering degrees, and that unless we assume that these people are to be replaced later by college graduates, we must consider them as engineers.

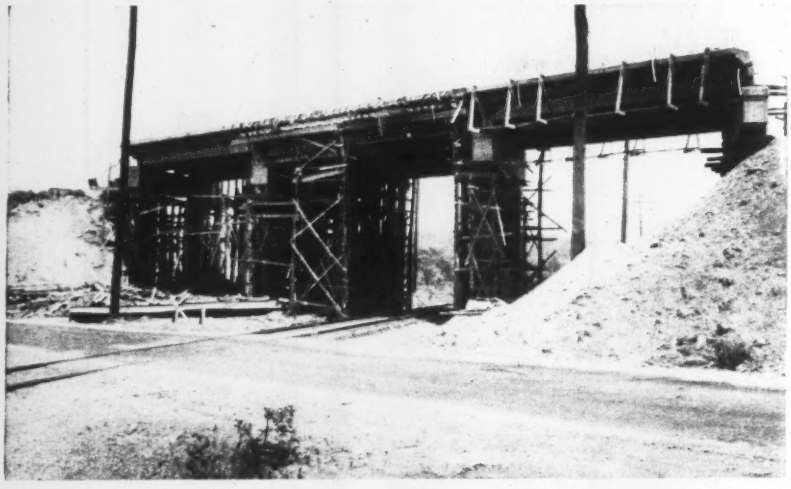
As a result of his reexamination, Mr. Armsby states that his estimates indicate a surplus of engineers in the United States in 1949, adding that actually this oversupply may become evident in 1948.

The present 4-year course in civil engineering at Rice Institute, Houston, Tex., will be replaced by a 5-year course next September. The change is an outcome of the desire of scientific and technical societies, as well as the Institute, to widen the education of civil and other engineers in order that graduates may leave with a wider understanding of affairs.

A feature of the new system will be uniform first and second years for all new students in science and engineering courses. Also, civil and other engineering students will be required to take two courses in chemistry, one in introductory chemistry and qualitative analysis, and one in quantitative analysis, during the two years. Among the non-technical subjects in this period will be "Foundations of Western Civilization" or American history, English composition, an English elective, and German. To acquaint students with the various science and engineering fields, orientation lectures by instructors, local engineers, and authorities outside Houston, will be given. Aptitude tests will be given during the second term of the second year to assist students in their final choice of specialized courses in the third year.

Civil engineers and other engineering and science students completing the first four years of their courses will receive the B. A. degree. On completion of the fifth year, civil engineering students will receive the B. S. in civil engineering.

Under the new system, civil and other engineers will be required to take a minimum of two and one-half years of English instead of the present one and one-half; two years of a foreign language instead of the present one year; a year of history, which is not now required; and one year of a humanity—philosophy, psychology, sociology or additional English—not at present required.



***Trees for Falsework**—Scarcity of sawed timbers for falsework on this 199-ft. concrete bridge over the Southern Railroad tracks south of Dalton, Ga., proved no obstacle to the Stepp Engineering Co. of Dalton, the contractor. Small trees from a nearby pine grove, ranging from four to six inches in diameter, were successfully used. The bridge will consist of one 47-ft. and four 38-ft. spans, to carry a 30-ft. roadway over the tracks.*

Canada permits entry of German scientists

The Canadian Trade Department has announced that selected German scientists and technicians may be transferred to Canada if they possess the necessary knowledge to assist in the establishment of new industries or the expansion of existing operations.

A recently passed order-in-council also makes provision for the entrance of research scientists and university professors provided that a specific request is made in each case by a responsible Canadian firm or university. The first half-dozen scientists are reported as ready to make the trip and these as well as all who follow will be governed by this 8-point contract. Some of its provisions are:

1. Contracts must be signed by the Germans prior to leaving Germany; 2. They will come at the expense of the Canadian government—to be recovered from the eventual employer; 3. Employment is for one year, extendable for one additional year. The government is free to return the scientists to Germany at any time; 4. Salary rates will be at scales prevailing in the United Kingdom and ordinary taxation will apply.

Employers will report monthly in writing to the Trade Minister on the ability and conduct of the German employee; the Germans will not be permitted to write for publication nor give interviews to the press without written O.K. of the minister, and the German employee will assign to the government his title to all inventions, processes or improvements for which he may be responsible during the period of his contract.

Water now runs through Alva B. Adams tunnel

On June 23 the first water passed through the 13.06-mile Alva B. Adams tunnel joining the Pacific and Atlantic watersheds, when Colorado's Governor Lee Knous pulled the gate to start the water through at the western end.

This project of the Bureau of Reclamation is now complete, only awaiting construction of the distribution works to deliver water to existing lateral systems serving eastern slope farm lands. Appropriations and materials permitting, water from the other side of the Continental Divide will be aiding eastern Colorado crops by 1952. In the meantime, a temporary wooden pipeline to irrigate a portion of the lands is being constructed by the water users themselves.

The Alva B. Adams tunnel was bored in record time through solid rock as deep as 3,800 ft. beneath the hump of the Rocky Mountains. The concrete lining also was completed ahead of schedule to set another record.

This project was devised to transfer surplus waters from the western side of the Rockies to the dry eastern slope of Colorado for supplemental irrigation of more than 615,000 acres of land.

Pennsylvania approves flood control program

A $10,000,000 flood control program for Pennsylvania was approved by the state legislature prior to its recent adjournment, and a 13-man flood control commission was authorized.

It is planned to start flood control work at the headwaters of streams in the state, and link the entire project with parks and dams which will also be used for recreational purposes.

Plan to control water in Florida Everglades

A preliminary plan for the control of water in the Everglades region of south Florida has been prepared by the Corps of Engineers.

Col. Willis E. Teale, district engineer in Jacksonville, said the plan was devised for preserving the continued usefulness of Everglades lands now under cultivation, enabling its eventual extension to cover all productive lands, and promoting conservation by water impoundment.

The proposal includes:

1. Constructing a perimeter levee with an internal rim canal circling the entire area suitable for long-term agriculture.

2. Improving and extending the main canals within the agricultural area and constructing two additional canals.

3. Constructing major pumping stations at the lakeward ends of each main canal.

4. Constructing pumping facilities at the lower ends of the agricultural area at points where intersected by the main canals.

5. Providing large water retention areas generally south and east of the agricultural area on lands classified as non-agricultural.

6. Constructing canals outside the perimeter levee along the north and west boundaries to intercept flood flows.

7. Improving discharge efficiency of existing locks and spillway structures at the coastal ends of West Palm Beach, Hillsboro, and North New River and South New River Canals.

Urge end of escalator clauses in construction

The abandonment of escalator clauses in construction contracts as a step toward stabilizing prices throughout the building industry was recommended recently in a resolution adopted by the board of directors of the Associated General Contractors of Minnesota.

Escalator clauses have been in general use since the beginning of the war as a device to protect contractors, subcontractors and material dealers against unforeseen changes in material and labor costs.

The Minnesota A.G.C. group's resolution urged these clauses be abolished "in the best interests of the construction industry."

Maryland names J. B. Funk improvements engineer

Governor W. Preston Lane, of Maryland, has transferred Secretary of State John B. Funk to the new post of chief engineer in the Department of Public Improvements, where he will supervise all plans and contracts for public building undertaken by state agencies, and is to prepare a code for public buildings to be laid before the General Assembly in 1951.

Now 41 years of age, Mr. Funk was a 1926 graduate from Washington and Lee University, leading the civil engineering class. His engineering experience has included work on the Chrysler Building and Hotel New Yorker in New York and the Stevens Hotel in Chicago.

$20 million building plan for Western Reserve

A $20,000,000, 10-year program of buildings and improvements for Western Reserve University at Cleveland, Ohio, has been announced by President Winfred G. Leutner. Major recommendations and estimated costs are: University library, $2,500,000; science laboratory and classroom building, $2,500,000; new building to house Cleveland College, the downtown center, $2,500,000; and fine arts, music, and drama buildings, $1,000,000.

Dr. Leutner told the board of trustees, which took his recommendations for study, that for 14 other projects a total of $11,850,000 was needed. These include: School of Applied Social Sciences, $500,000 to $700,000; School of Pharmacy, $500,000; school of nursing, $800,000.

OBITUARY

Edward A. Fisher, 67, city engineer of Lakewood, Ohio, from 1914 until his retirement last February, died June 19. Lately he was serving Lakewood in a consulting capacity. He was graduated, with a degree in civil engineering, by Cornell University in 1905. Before his appointment as Lakewood city engineer he had supervised city engineering work at Ravenna, and had served as assistant city engineer at Lorain.

John Stephens, 63, well known engineer in the Maritime provinces, died at Fredricton, N. B., June 17. For 37 years he had been on the staff of the engineering school of the University of New Brunswick and had been dean for many years before retiring in 1945 to become engineer in charge of steam power development for the New Brunswick Electric Power Commission.

J. F. Frazier, 53, Oklahoma highway contractor, who had been county engineer for several counties, died recently at Oklahoma City. Fifteen years ago, he and R. L. Finley organized the Midwest Materials and Construction Co. and conducted the business until it was dissolved a year ago.

Howard H. Snelgrove, 70, who retired in 1935 as chief of the minerals division, public survey office, Department of the Interior, died in Salt Lake City, Utah, recently. Mr. Snelgrove was graduated from the University of Utah as a civil engineer in 1900. He held the government job for 30 years.

Walter R. McCaslin, 64, of the consulting engineer firm, McCaslin and Rachford, Nokomis, Ill., died recently.

C. Spencer Marsh, 48, of Skyland, N. C., died June 20. Associated with the Dave Steel Co. of Skyland, he was a veteran of both world wars, having been separated from the Army after World War II with the rank of lieutenant colonel. During the last war he was in charge of an engineering group in charge of the construction of Camp Butner, N. C., headed an engineer group in Panama, and commanded the 870th Engineer Aviation Battalion in New Guinea which constructed the Finchaven air strip. At one time he also served as utility officer at the U. S. veterans hospital at Oteen, N. C.

John S. Townsend, 58, superintendent of rural road maintenance and lifetime resident of Honolulu, T. H., died there on May 30. He was active up to the time of his death in supervising city-conducted repairs on the precipitous Pali Cliff road.

Charles H. MacCulloch, 70, a senior civil engineer of the New York State Department of Public Works died in Albany, June 24.

He had retired last February, having reached the mandatory retirement age. He entered the state service in 1900 and served continuously until his retirement, except for one 3-year period when he acted as a consulting engineer helping design the Albany water supply system. He was graduated from Union College where he also taught engineering for one year.

Ralph W. Greenlaw, 67, an engineer who for many years was engaged in work on subways and tunnel construction in New York City and Philadelphia, Pa., died at Teaneck, N. J., June 26. A 1902 graduate of Harvard, he was formerly secretary and treasurer and chief engineer of Hart & Early, Inc., of New York. Mr. Greenlaw worked on subway contracts for that corporation and for the Heyman & Goodman Company and Smithauser & McIsaacs. He had been chief engineer for both the latter firms, now out of business. He was assistant division engineer in the construction of the Catskill Aqueduct.

Adam L. Wymer, 82, bridge construction expert for many years, died in Youngstown, Ohio, June 19. He retired in 1932 as president of the Wymed-Harris Construction Co. He directed the building of the Knoxville, Tenn., span, the bridge over St. John's River at Jacksonville, Fla.

Robert L. Dunham, 64, consulting engineer formerly associated with the late John B. Hawley, died last week. He had offices in Ft. Worth and Houston, Tex. He had been engaged as a construction and consulting engineer since his graduation from Purdue University.

MAJOR MEETINGS

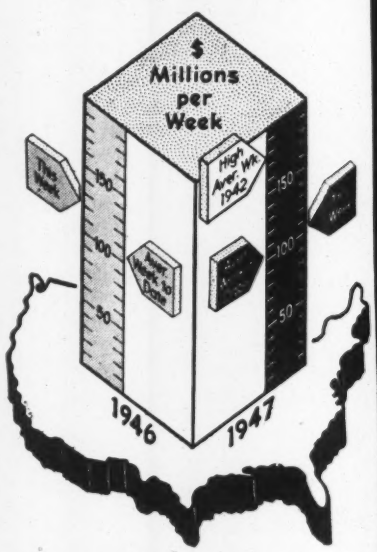
American Society of Civil Engineers, 75th annual summer convention, Hotel Duluth, Duluth, Minn., July 16-18.

American Water Works Association, 67th annual conference, jointly with Federation of Sewage Works Association, 20th annual meeting, Civic Auditorium, San Francisco, Calif., July 21-25.

Federation of Sewage Works Associations, jointly with American Water Works Association. See above.

American Congress on Surveying and Mapping, 7th annual meeting, Statler Hotel, Washington, D. C., August 14-15.

CONSTRUCTION ACTIVITY



As Reported this week to . . .
Engineering News-Record

CONTRACT VOLUME

Continental U. S. Only (Thousands of Dollars)

	Week of July 3 1947	Cumulative 1947 (27 wks)	Cumulative 1946 (27 wks)
Federal	$30,037	$361,975	$350,537
State & Mun.	45,190	844,682	670,766
Total Public.	$75,227	$1,206,657	$1,021,303
Total Private	30,372	1,572,807	1,734,395
U. S. Total	**$105,599**	**$2,779,464**	**$2,755,698**

WHERE CONSTRUCTION ACTIVITY ORIGINATED THIS WEEK

Dollar Volume (Thousands)

Type of Work	This Week	Cumulative 1947 (27 wks)	Cumulative 1946 (27 wks)
Waterworks ..	$2,391	$58,018	$47,499
Sewerage	2,833	67,004	46,691
Bridges	2,695	84,481	64,928
Highways	25,573	403,758	383,677
Earthwork, Waterways	9,631	166,571	223,597
Buildings, Public	26,777	279,196	169,261
Industrial ..	10,594	399,223	545,898
Commercial .	13,961	926,129	1,078,122
Unclassified ..	11,144	395,084	196,025

NOTE: Minimum size projects included are: Waterworks and waterway projects, $22,500; other public works, $40,000; industrial buildings, $55,000; other buildings, $205,000.

NEW PRODUCTIVE CAPITAL

	Cumulative 1947 (27 wks)	Cumulative 1946 (27 wks)
NON-FEDERAL ....Current		$548,543
Corporate Securities Figures		203,131
State and Municipal Not		345,412
FEDERAL .....Available		158,320
Total Capital		**$706,863**

ENR INDEX NUMBERS

Index Base = 100		1913	1926
Construction Cost..	July'47	406.52	195.41
Building Cost	July'47	304.87	164.80
Volume	June'47	277.	121.